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ABSTRACT

Coastal resources are highlighted in this activity book for primary school children. Special focus is given to Mississippi's coastal areas, but applications to other geographic areas can be made. Wetland concepts and conditions are developed through a variety of games, puzzles, matching exercises and pictorial explanations. Activities addressing the following topics are included: barrier islands; plankton; tidal marshes; food chains; vertebrate and invertebrate species; fishes; birds; and coastal resources. Also included is an answer sheet for all the activities and exercises. (ML)

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WATERWAYS BOOK

An activity book about Mississippi's coastal resources for primary grades.

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This book belongs to _____ .

WATERWORKS BOOK

An activity book about Mississippi's coastal resources for primary grades.

Written by: Kevin M. Howe

Illustrated by: Samuel Johnson

Produced by: Mississippi Department of Wildlife Conservation
Bureau of Marine Resources
Terese P. Collins, Special Projects Officer
Richard L. Leard, Ph.D., Director

1984

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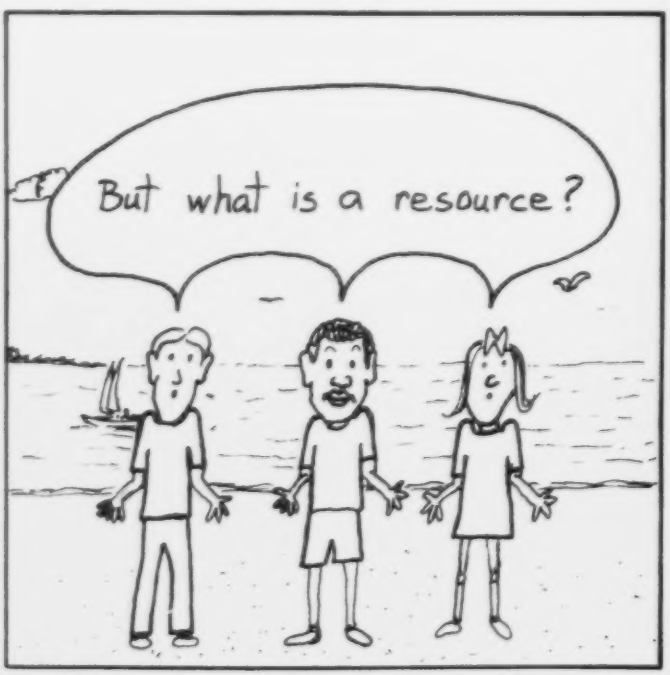
COASTAL RESOURCES

This activity book is about COASTAL RESOURCES.

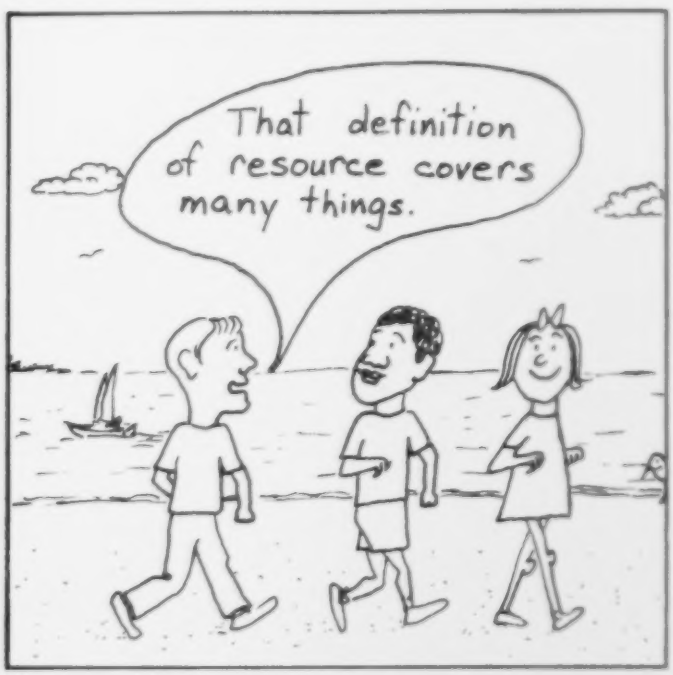


COASTAL RESOURCES

re source (re 'sors)

re means "again and again".

source means "anything or anyplace from which something comes or is obtained".



COMPLETE THE DEFINITION of resource —

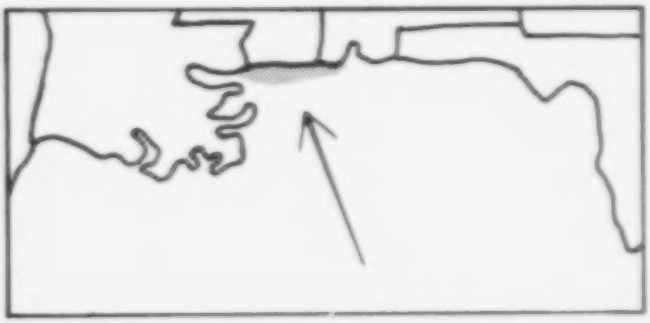
A resource is: "any _____ or any _____

from which _____ comes or is _____

again and _____".

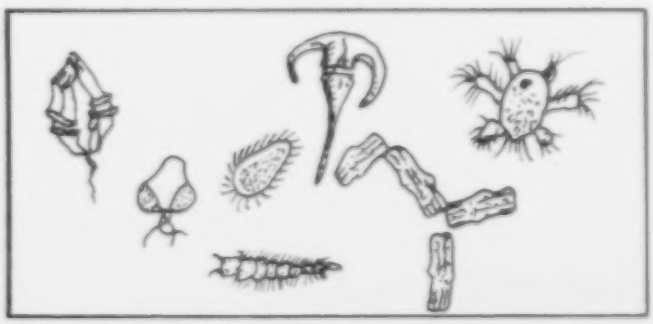
WHAT ARE COASTAL RESOURCES?

Resources are many things. Here are some examples of COASTAL RESOURCES:



1. Mississippi Sound

2. _____



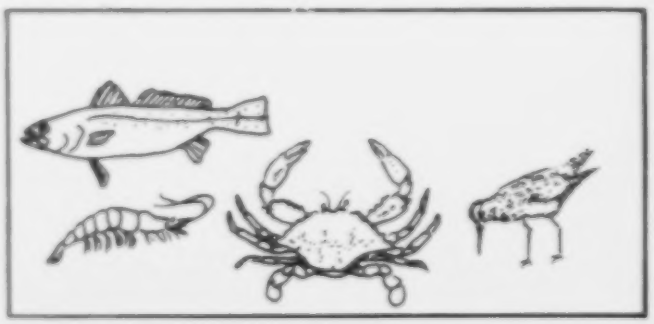
3. _____

4. _____

TIDE TABLE

High Tide	Ht.	Low Tide	Ht.
7:58 A.M.	1.7	6:53 P.M.	0.1
8:17 A.M.	1.9	7:25 P.M.	0.0
8:49 A.M.	2.0	8:03 P.M.	-0.2
9:30 A.M.	2.2	8:45 P.M.	-0.3
10:10 A.M.	2.3	9:31 P.M.	-0.4

5. _____



6. _____

NAME THE RESOURCES - Each resource listed below matches one of the pictures shown above. Write the correct word(s) under each picture. We did one for you.

a. Mississippi Sound

b. Animals

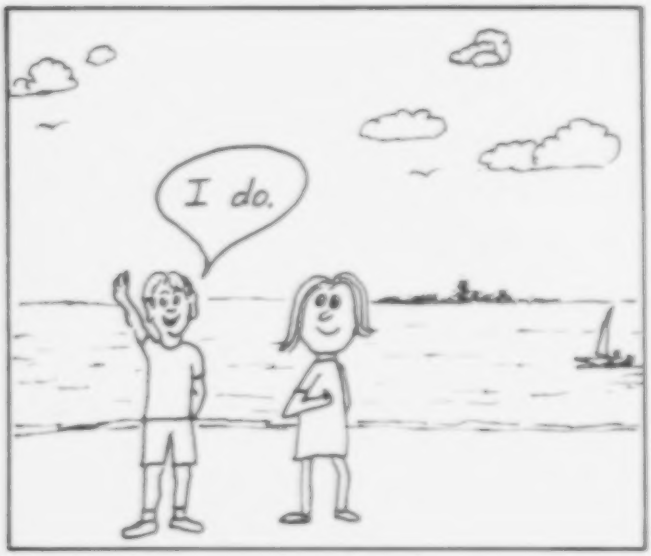
c. Tides

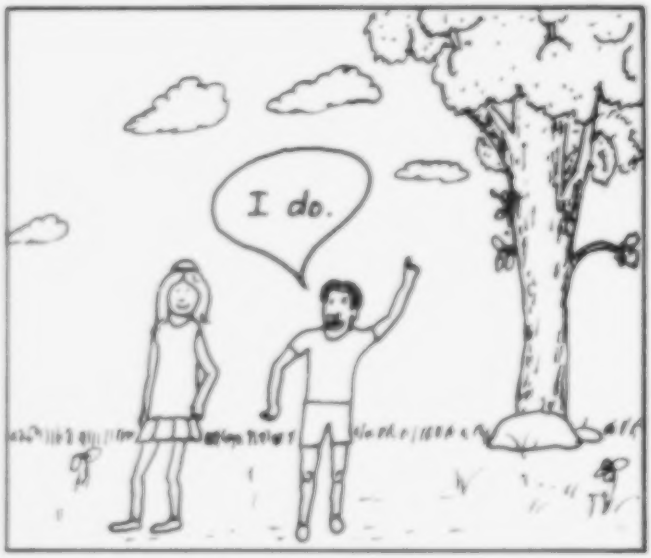
d. Plankton

e. Wetlands

f. Barrier islands

WHO OWNS COASTAL RESOURCES?





Most COASTAL RESOURCES are PUBLIC RESOURCES, and they are owned by EVERYONE. Here are the important things that we get from these PUBLIC RESOURCES:

LIFE FOOD TRANSPORTATION RECREATION JOBS

Because these PUBLIC RESOURCES are so important, we have to be very careful that we do not lose them, abuse them, or waste them. We have to use them wisely for the benefit of the public. We call this conservation. Webster's dictionary says conservation means "the official care and protection of natural resources".

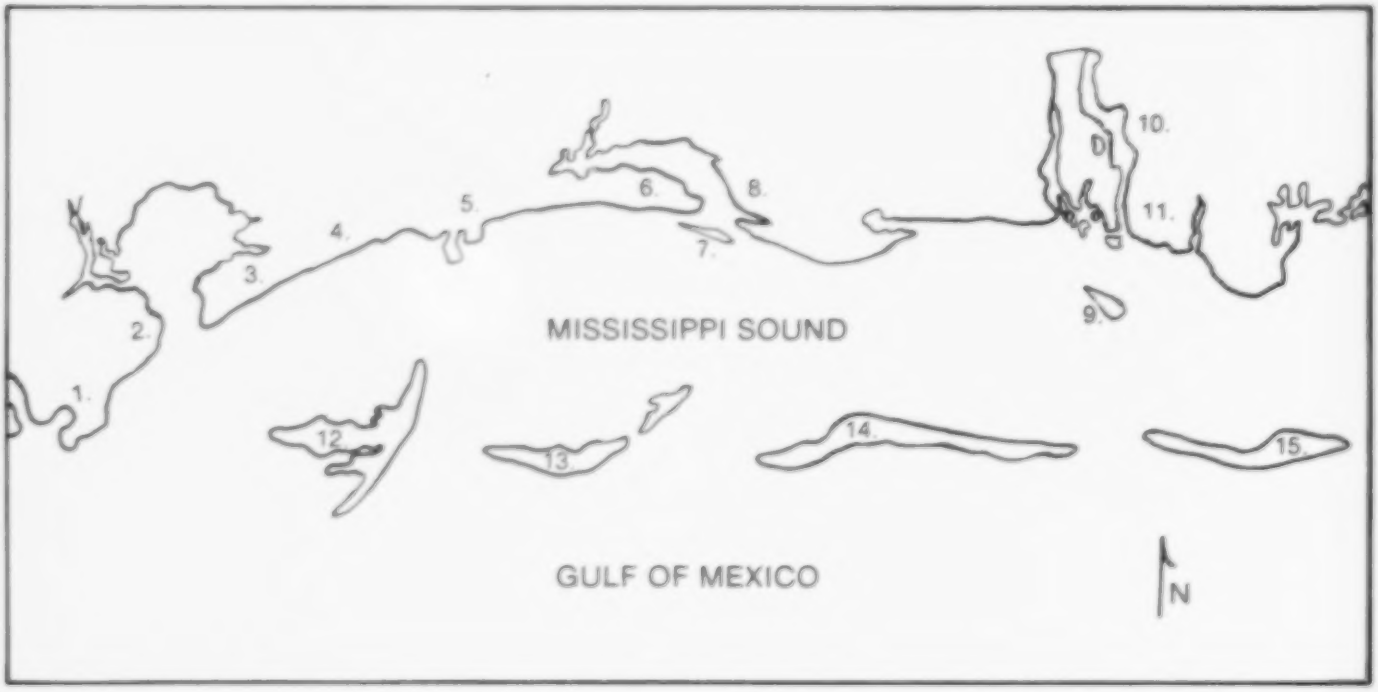
MISSISSIPPI SOUND

WHAT'S MISSISSIPPI SOUND?

MISSISSIPPI SOUND is a COASTAL RESOURCE. It is a shallow body of water between the mainland (coast) and the offshore barrier islands.

HOW DEEP IS MISSISSIPPI SOUND?

It can be as deep as 56 feet in the dredged channels, but the average depth is about 12 feet.



NAME THE PLACES ON THE MAP — Listed below are the names of some places along the Mississippi coast. Match the correct numbers on the map above with the corresponding names of the places the numbers represent. Write the number next to each name. The first four blanks have been completed for you.

a. 5 Gulfport
b. 14 Horn Island
c. 10 Moss Point
d. 2 Bay St. Louis
e. _____ Pass Christian
f. _____ Cat Island
g. _____ Ocean Springs
h. _____ Deer Island
i. _____ Round Island
j. _____ Waveland
k. _____ Long Beach
l. _____ Biloxi
m. _____ Pascagoula
n. _____ Petit Bois Island
o. _____ Ship Island

BARRIER ISLANDS

WHAT ARE BARRIER ISLANDS?

They are islands made of sand or shell that lie parallel to the coast. They may be a few hundred feet to several miles from the mainland. Mississippi's BARRIER ISLANDS are made of sand. They really are barriers and help protect the Mississippi Sound and the coast from strong waves, storms and currents of the Gulf of Mexico. The islands are important and beautiful COASTAL RESOURCES.

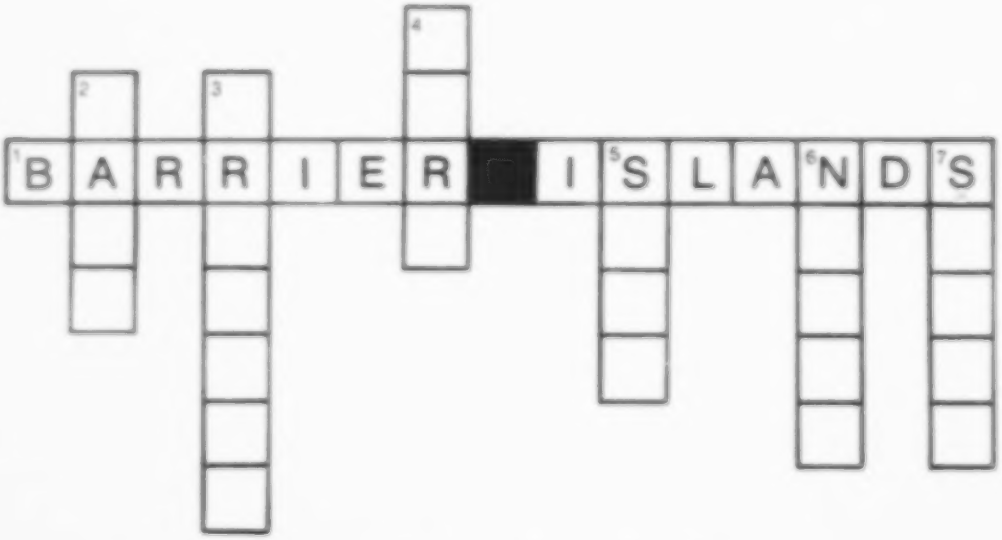
COMPLETE THE CROSSWORD PUZZLE — It's about Mississippi Sound and the islands. The first one has been completed for you.

ACROSS

1. BARRIER ISLANDS are important resources.

DOWN

2. All the islands are made of _____ with dunes created by the wind.
3. The islands help _____ the Sound from the strong waves and storms of the Gulf.
4. _____ Island is a park and a wilderness island.
5. Hurricanes in 1947 and 1969 caused _____ Island to be split into two parts.
6. If you swim on the _____ side of Ship Island, you are in Mississippi Sound.
7. If you swim on the _____ side of Ship Island, you are in the Gulf of Mexico.



PLANKTON

The word PLANKTON is a name for all the plants and animals that live in water and drift or wander with the currents and tides. PLANKTON is found in all bodies of water — lakes, ponds, ditches, rivers, streams and oceans. Plankton is a RESOURCE, too.

There are two types of PLANKTON: PLANT and ANIMAL.

PLANT PLANKTON

There are thousands of different kinds of plant PLANKTON. Most are tiny and can only be seen under a microscope. They are not attached to anything and just drift or wander in the water. Plant plankton lives near the water surface where there is light. Using light and nutrients, plants make their own food, and they make oxygen too! Much of the oxygen in the air comes from plant PLANKTON.

ANIMAL PLANKTON

There are thousands of different kinds of animal PLANKTON, too. Most are tiny, like the plant plankton, but some are larger. A jellyfish is a kind of animal plankton, and some get very large. Some animals are plankton for their entire lives. Others are plankton only for a part of their lives, like a crab or shrimp. Animals, including animal plankton, can not make their food — some eat plants; others eat animals.

PLANKTON IS VERY IMPORTANT BECAUSE IT IS THE FOOD FOR MOST SMALL ANIMALS!

PLANKTON PUZZLE

COMPLETE THE CROSSWORD PUZZLE BELOW — All the answers are on the page to the left. We did one for you.

ACROSS

1. PLANKTON is a name for plants and animals that drift with the tides or currents.
2. _____ must eat their food. They cannot make their food like plants.

DOWN

1. _____ can make their own food.
3. All plankton lives in _____ .
4. Plankton lives in the ocean and in _____ .
5. All plants make their own food and _____ .

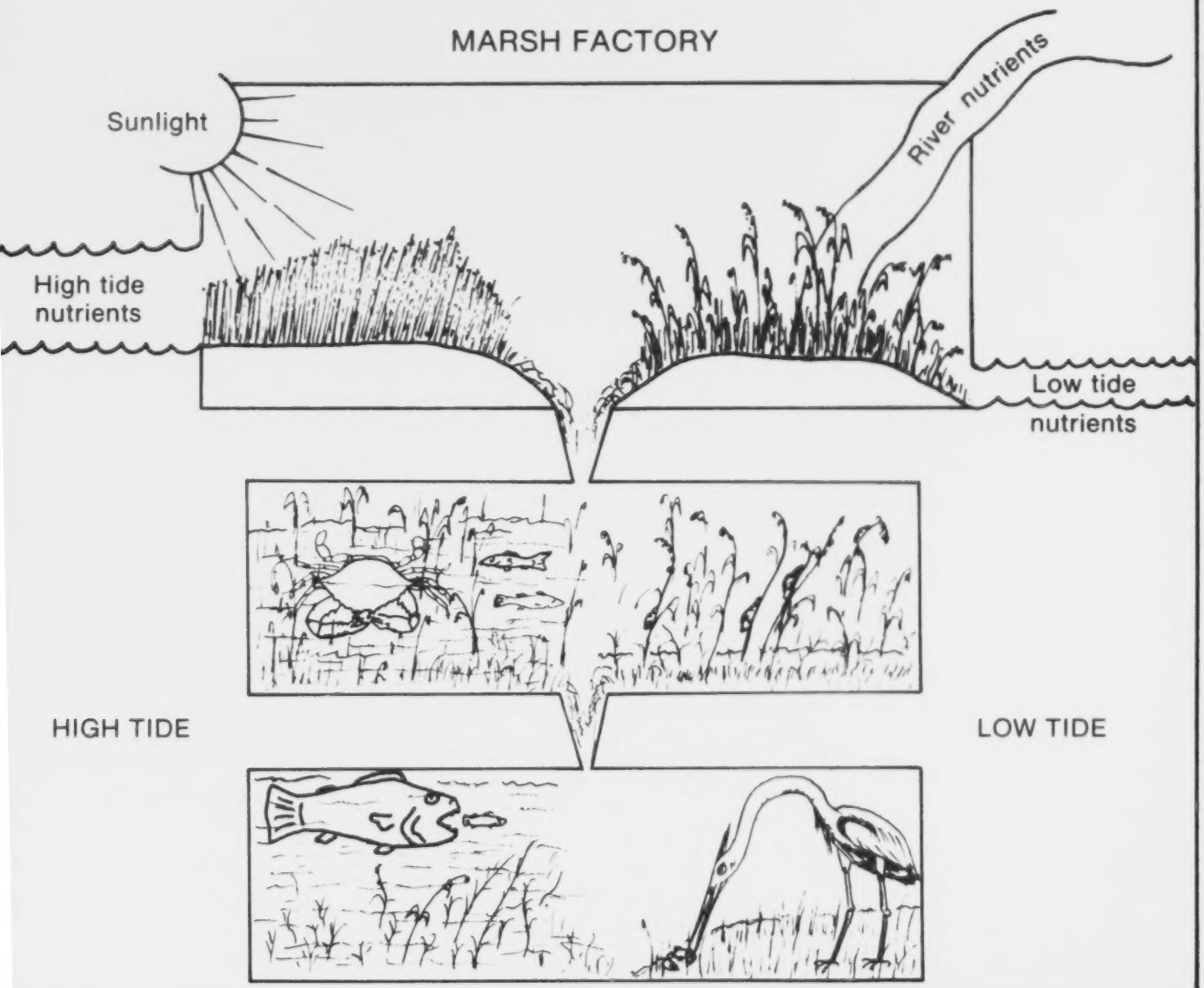
TIDAL MARSHES - THE WETLANDS' RESOURCE FACTORIES

WHAT ARE MISSISSIPPI'S COASTAL WETLANDS?

Wetlands include all the TIDAL MARSHES, bayous, the water and water bottom in Mississippi Sound AND all the plants and animals that live there. Wetlands are PUBLIC RESOURCES, owned by everyone.

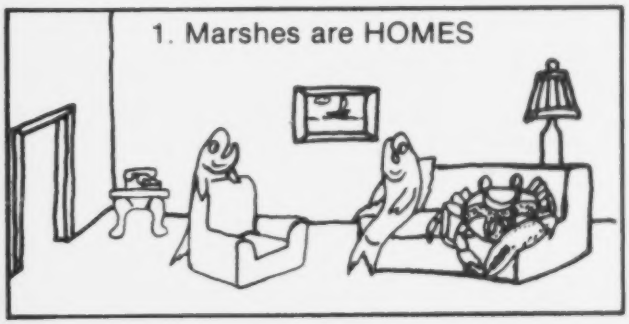
WETLANDS ARE RESOURCE FACTORIES

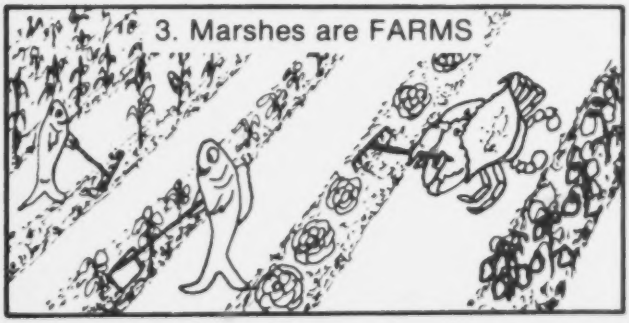
A factory is a place where things are made. In a WETLANDS RESOURCE FACTORY plants use nutrients in the water and energy from the sun for growth. Small animals use these wetland plants for food and as a result they too grow. These smaller animals are the food of larger animals. A WETLANDS RESOURCE FACTORY makes plants, which help to make small animals, which help to make large animals.

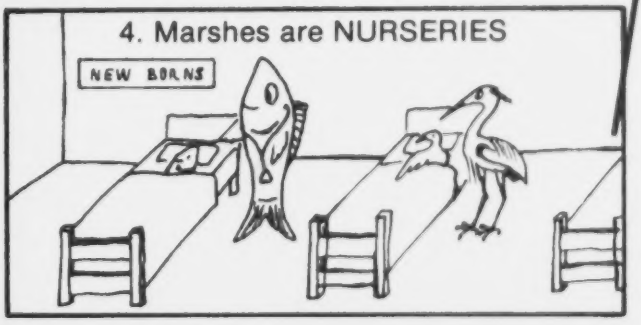


MARSHES ARE MORE!!!

MARSH MATCHING — Match the picture and phrase on the left with the phrase on the right that describes the way plants and animals use a tidal marsh. Draw a line from the phrase on the left to the correct letter. One match has been completed already.







a. because so many YOUNG animals are RAISED in the marsh (like shrimp and crabs and many fishes).

b. because so many plants and many animals LIVE part or all of their lives IN the shelter of the marsh (like snails and fiddler crabs).

c. because so many animals go to the marsh to FEED (like big fishes, birds and raccoons) but live in other habitats.

d. because of all the PLANTS that NATURE GROWS in the marsh.

Tidal marshes are NATURE'S SEAFOOD FACTORIES. If we pollute or destroy the marshes, we would lose most of the plants and animals that live there. We must conserve coastal marshes.

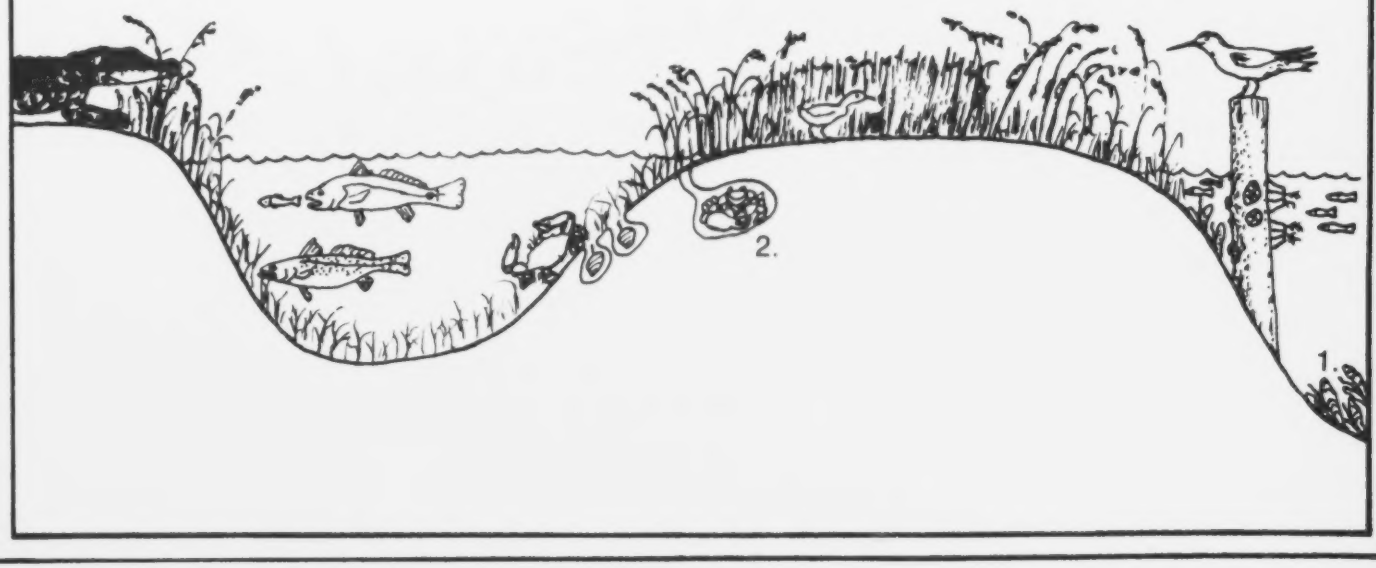
OBSERVING THE TIDAL MARSH
HIGH TIDE

Tides affect the activities of plants and animals in a TIDAL MARSH. Some animals feed only during a HIGH TIDE and rest during a low tide. Other animals do just the opposite. And many larger animals come into the marsh only during HIGH TIDE. During low tide the larger animals are in deeper water.

ACTIVITY — The picture shows animals in a marsh at HIGH TIDE. Some animals are FEEDING and some are HIDING. Below is a list of all the animals shown in the picture. Find each animal in the picture and write its number next to it. Some animals are pictured more than once. The first two have been completed.

1. OYSTERS
2. FIDDLER CRAB
3. BARNACLES
4. SPECKLED TROUT
5. CLAMS
6. SMALL (YOUNG) FISHES
7. PERIWINKLE SNAILS
8. ALLIGATOR
9. BLUE CRAB
10. CLAPPER RAIL (bird)
11. DRUM (large fish)
12. TERN

Marsh at HIGH TIDE

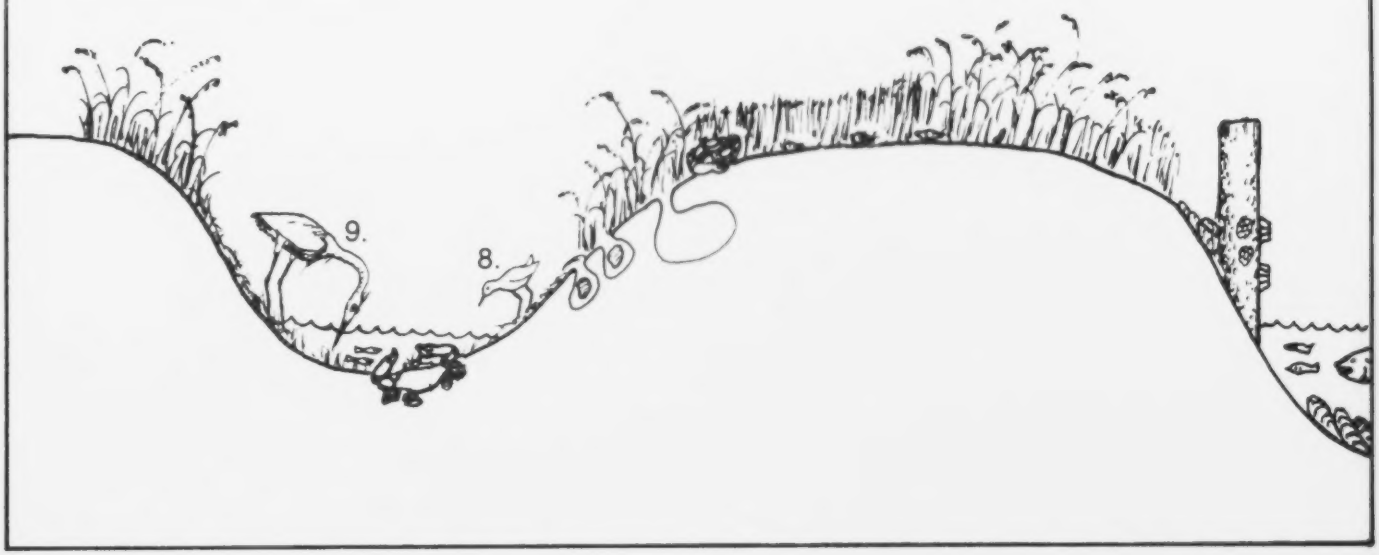


OBSERVING THE TIDAL MARSH
LOW TIDE

ACTIVITY — The picture below is similar to the picture on the last page, but it shows a marsh at LOW TIDE. Some animals are FEEDING and some are HIDING. Above the picture is a list of all the animals shown in the picture. Find each animal pictured and write its number next to it. Some animals are pictured more than once. The last two are completed.

1. OYSTERS
2. FIDDLER CRAB
3. BARNACLES
4. CLAMS
5. SMALL (YOUNG) FISHES
6. PERIWINKLE SNAILS
7. BLUE CRAB
8. CLAPPER RAIL (bird)
9. GREAT BLUE HERON

Marsh at LOW TIDE



MARSH OBSERVATION

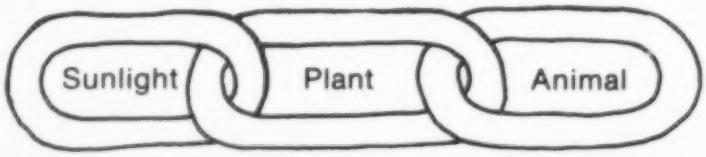
On a separate piece of paper, make a list of all the animals in the marsh at low tide and at high tide. For each animal, write a sentence that describes what it is doing (hiding or feeding) during each tide.

Also, make a list of the animals that you can find in the marsh only during high tide and another list of the animals found only during low tide. Where do you think the missing animals went?

FOOD CHAINS

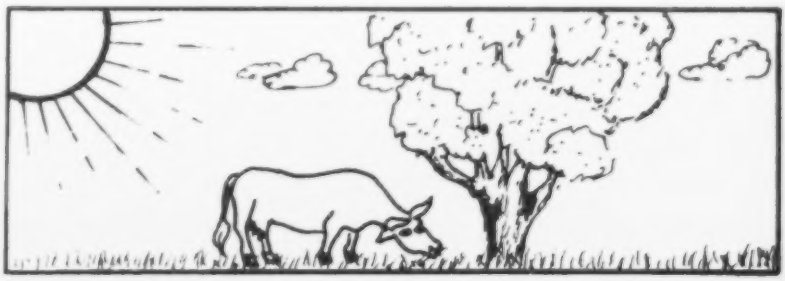
Plants depend on sunlight to make their food. Animals eat either plants or other animals or both. Without light there would be no plants. Without plants, there would be no animals. Light and plants and animals are linked together into something called a FOOD CHAIN.

A simple FOOD CHAIN would have three links such as:



Here is a real food chain:

SUNLIGHT
↓
GRASS
↓
COW



MAKE A FOOD CHAIN — Using the five words listed below, make a food chain like we did for the sunlight, grass and cow. First, put the words in the correct order and write them on the lines below. Then draw a picture of a food chain in the box provided.

PLANKTON BIG SHARK SHRIMP SUNLIGHT FISH

1. SUNLIGHT
↓
2. _____
↓
3. _____
↓
4. _____
↓
5. _____

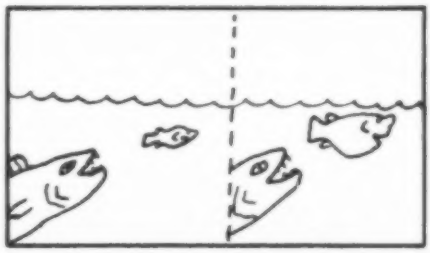
ANIMAL PROTECTION

Many animals die by being eaten by other animals.

All ANIMALS have many ways to PROTECT themselves from being eaten.

BEHAVIOR: Some animals protect themselves by their behavior.

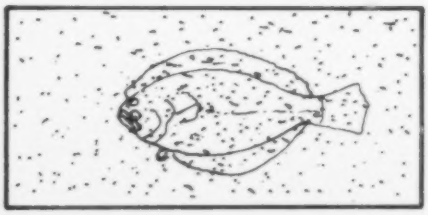
Birds can fly away.



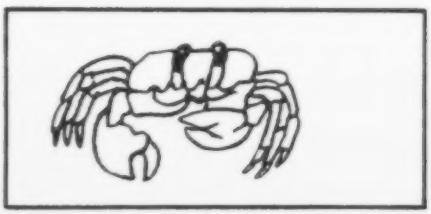
Puffer fish swallow air or water to puff up and make themselves too big to swallow.

Fiddler crabs burrow to hide.

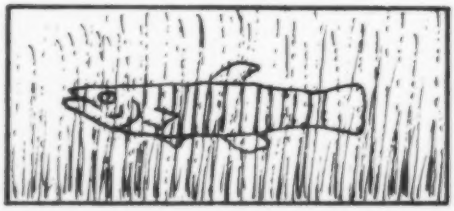
COLOR: Some animals protect themselves by their color (camouflage).



Flounders match the color of the bottom they live on.



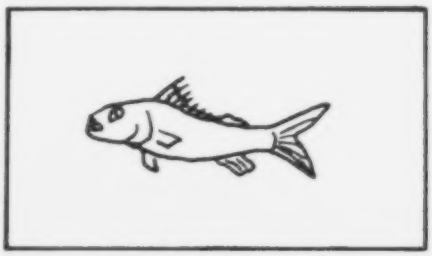
Ghost crabs are light in color like the sand they live on.



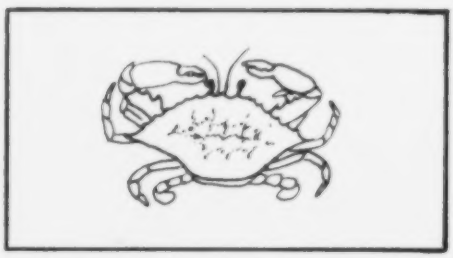
Killifish have camouflage stripes and live among plants.

SPECIAL BODY PARTS: Some animals protect themselves by using special body parts.

Jellyfish use their stinging tentacles.



Fish use their fin spines and teeth.



Crabs use their claws.

ISN'T THAT AMAZING!

WHAT CAUSES TIDES?

There are tides along all the coasts of the world. Tides are caused by the gravitational pull of the moon. The sun also has some effect on the tides; but the moon is closer to the earth, so it has a greater effect. Most coasts have two high tides and two low tides every 24 hours. Generally, there is only one high and one low tide every 24 hours along the Mississippi Gulf Coast (and most areas in the Gulf of Mexico). In some places in the world, the difference between a low and a high tide might only be one foot, but in other places it is as great as 50 feet! Along Mississippi's coast the tidal difference is small, only a few feet. During a storm or hurricane, strong winds may push the water and make the tide higher or lower.

ARE WAVES AND CURRENTS AND TIDES THE SAME THING?

No, but they do have an effect on each other. Most waves are caused by wind and only travel across the surface of the water. Waves ripple the surface. Currents are also caused by wind, but these winds blow almost constantly. These winds occur all around the earth's equator and are called the trade winds. Currents actually move water, not just ripple the surface. Water temperature also has an effect on currents. As water is heated up at the equator, it expands. This makes it flow toward the North and South Poles. As you know, tides are caused by the pull of the moon's gravity. Wind causes most waves. It can also make currents, and it can make a tide lower or higher.

HOW ARE CHANNELS MADE?

Some channels are natural channels, but many channels have to be man-made by dredging. Dredging is the removal of bottom sand and mud to make the water deeper. By making the bottom (and channel) deeper, bigger ships can travel to our ports. For example, Mississippi Sound has dredged channels so that big ships can get to the shoreline. It was not always this way. Less than 100 years ago, big ships could not come all the way to the shoreline because the water was not deep enough. Big ships would stop at the barrier islands and unload their cargo onto small barges or boats. These vessels would then take the cargo through Mississippi Sound to the ports.

ISN'T THAT AMAZING!

HOW DO CRABS AND SHRIMP GROW?

The bodies of crabs and shrimp are inside their hard shell, and the hard shell prevents them from growing very much. So occasionally, they must get rid of their old, small shell and grow a new larger one. This is called shedding their shell or molting. Crabs and shrimp are arthropods and all arthropods grow this way. If you take a walk on the beach, you can often find an old crab shed.

WHAT IS A SOFT-SHELL CRAB?

That's a crab that has shed its shell and is waiting for the new, larger shell to become hard. This process takes a few hours. During this time, the crab is soft; so it's called a soft-shell crab. All crabs get soft when they shed. It is the blue crab that people fry and eat whole when it has a soft shell.

WHAT ARE ENDANGERED SPECIES?

Endangered species are plants or animals that have become very, very rare and may disappear in a few years unless we protect them. Most species become endangered because of human activities. For example, sea turtles are turtles that live in the ocean all of their lives. They come on land only to lay their eggs. Sea turtles were once very common, but now they are very rare. They are rare because too many humans killed the adults for food and also ate the eggs. Sea turtles lay their eggs only on sandy beaches along the coast. During the last 100 years we have built houses and things along the sandy beaches, and the turtles have lost many places to lay their eggs — they have lost their habitat. With only a few places left to lay their eggs, sea turtles just keep getting more and more rare. Some kinds of sea turtles could become extinct in a few years. Biologists, conservationists and the government try to protect the sea turtles so that they do not become extinct. Extinction is forever. Some animals have become endangered because of pollution, like the brown pelican and the bald eagle. Most animals become endangered because humans have changed the animal's habitat. Most animals can not move to a different habitat to find food and the other things that they need to live and raise their young. Habitats are very important.

ANIMAL TYPES
VERTEBRATES

Animals that live along the Mississippi coast are considered one of our COASTAL RESOURCES. Many of the animals we know have a bone down their back called a BACKBONE. The BACKBONE is really a series of bones, and each bone is called a VERTEBRA. So, we call animals with backbones VERTEBRATES. You are a VERTEBRATE!

Reach around to your back and feel your backbone.

VERTEBRATES are the only animals with bones. There are five groups of vertebrates. They are:

FISHES AMPHIBIANS REPTILES BIRDS MAMMALS

FILL IN — Using these five names, fill in the blanks below.

1. All _____ live in water and most have scales and gills.

2. All _____ have big eyes and soft skin, which is sometimes wet and sometimes dry. Some live in water and some live on land.

3. All _____ have dry skin and scales. Some live in water but most live on land.

4. All _____ have feathers, and almost all of them fly.

5. All _____ have fur or hair. Most live on land, but some live in water.

VERTEBRATE MATCHING

MATCHING — All the animals pictured below are VERTEBRATES. Match the name in the center with the correct picture on the left or the right by drawing a line from the word to the picture. We did one for you.

1.

2.

3.

4.

5.

a. alligator

b. whale

c. chicken

d. dog

e. human

f. shark

g. turtle

h. frog

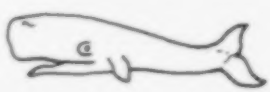
i. dolphin

j. snake

6.

7.

8.



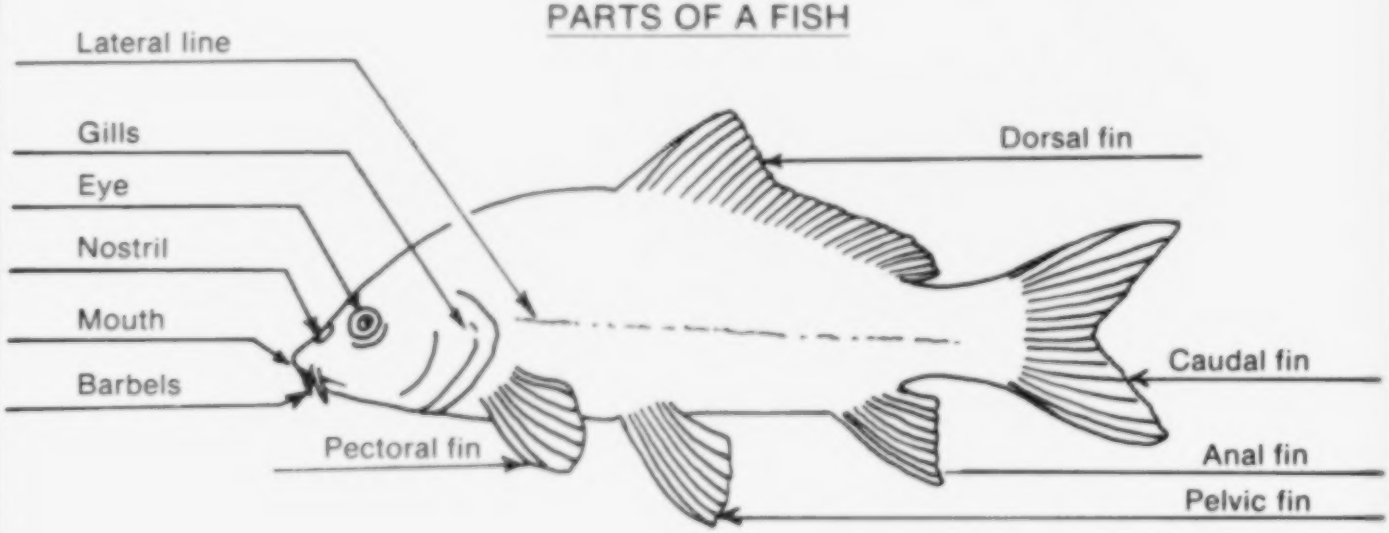
9.

10.

FISHES

Mississippi has more than 500 different kinds of FISHES. Some live only in lakes and rivers, and many live only in Mississippi Sound or in the Gulf of Mexico. All fish are RESOURCES.

PARTS OF A FISH



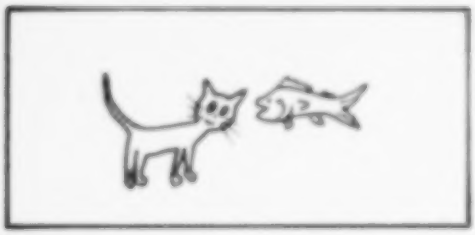
MATCH THE FISH PARTS — Using the picture above, match the word(s) on the left with the phrase on the right that goes best with the word(s). Do this by drawing a line from the word(s) to the correct phrase. We did one for you.

1. Eye	a. the last fin on the body, used for forward swimming
2. Mouth	b. if a fish could walk, these fins would be its legs
3. Barbels	c. the last bottom fin, sometimes has a few sharp spines
4. Anal Fin	d. fish have good vision and can see colors
5. Nostrils	e. used mostly for eating
6. Caudal Fin	f. line on the side that is used for "hearing" vibrations
7. Dorsal Fin	g. called whiskers by some people, these are taste sensors
8. Pelvic Fins	h. the "shoulder" fins, used for turning and stopping
9. Lateral Line	i. used for smelling but not for breathing
10. Pectoral Fins	j. the top fin, often has sharp (ouch!) spines
11. Gills	k. used for breathing, a fish has these instead of lungs

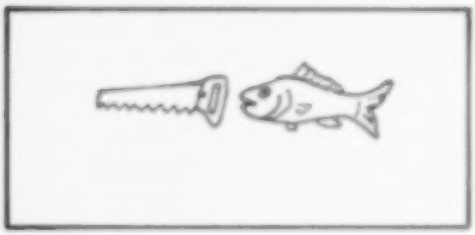
FISHES HAVE FUNNY NAMES

Many FISHES HAVE FUNNY NAMES, but their names are useful because they often help to describe what the fishes look like or what the fishes do. For example, the tonguefish is shaped like a tongue and the drum or croaker is named for the drumming or croaking sound it makes.

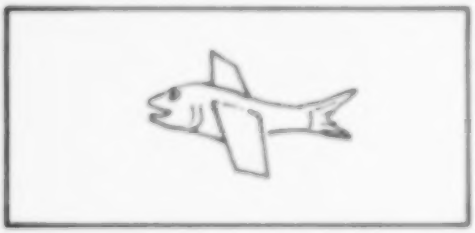
FILL IN THE BLANKS — Using the drawings on the left, guess the name of the fish and write the name on the line provided. Then match the name of the fish with its real picture on the right by drawing a line from the name to the correct picture. We did one for you.



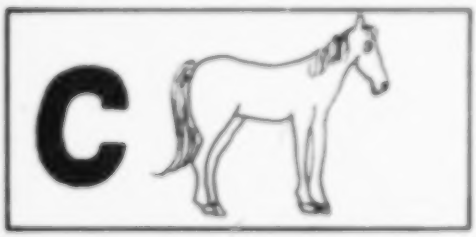
1. catfish



2. _____



3. _____



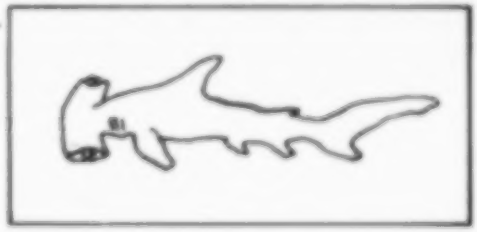
4. _____

5. _____

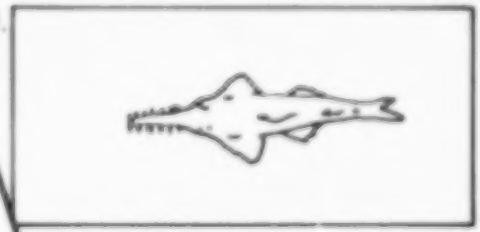
a.

b.

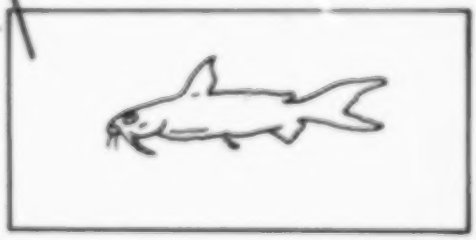
c.



d.



e.



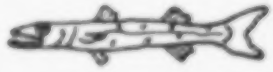
READ A FISH

Reading is using your eyes to get information and to think about things. We read using signals — words, pictures, stop lights and everything else we see. We can READ FISHES too — if we know some signals. Below we have some fish signals — body shape, and mouth position and size. Look at them carefully so that next time you see a fish, you can do a little "reading".

BODY SHAPE — the body shape of a fish tells something about where it lives and how fast it can swim.

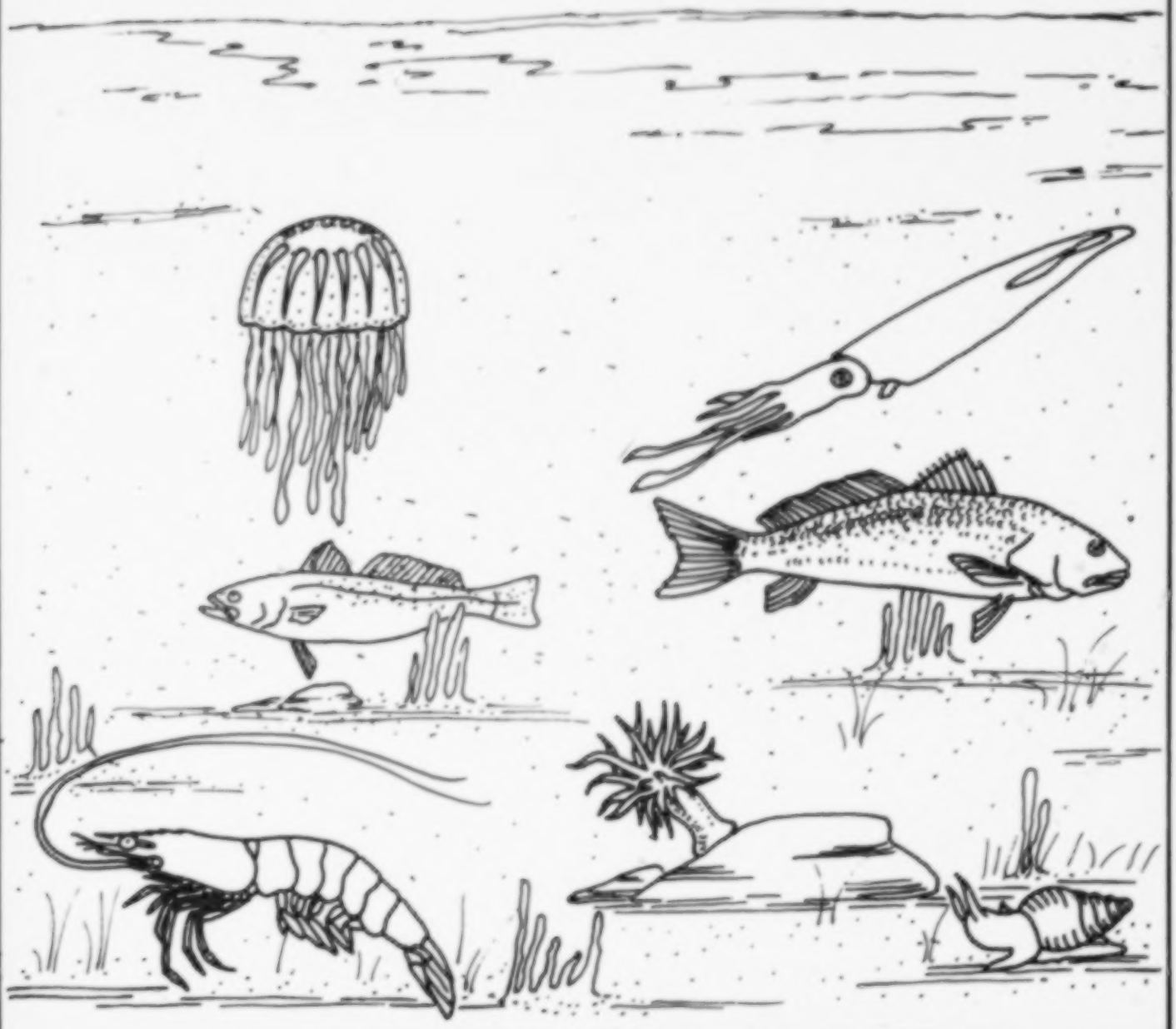
Flat body lives on bottom	Thin body swims fast	Deep body swims slow	Snake-like body lives in holes or among rocks
FLOUNDER	KING MACKEREL	SPADEFISH	SHRIMP EEL

MOUTH POSITION AND SIZE — the position and size of a fish's mouth tells something about where and what it eats.

Mouth faces down bottom feeder	Mouth faces up feeds on things above it	Small mouth picks food off piers and rocks	Large mouth feeds on large animals
			
RED DRUM	STARGAZER	SHEEPSHEAD	BARRACUDA

COLOR THE PICTURE

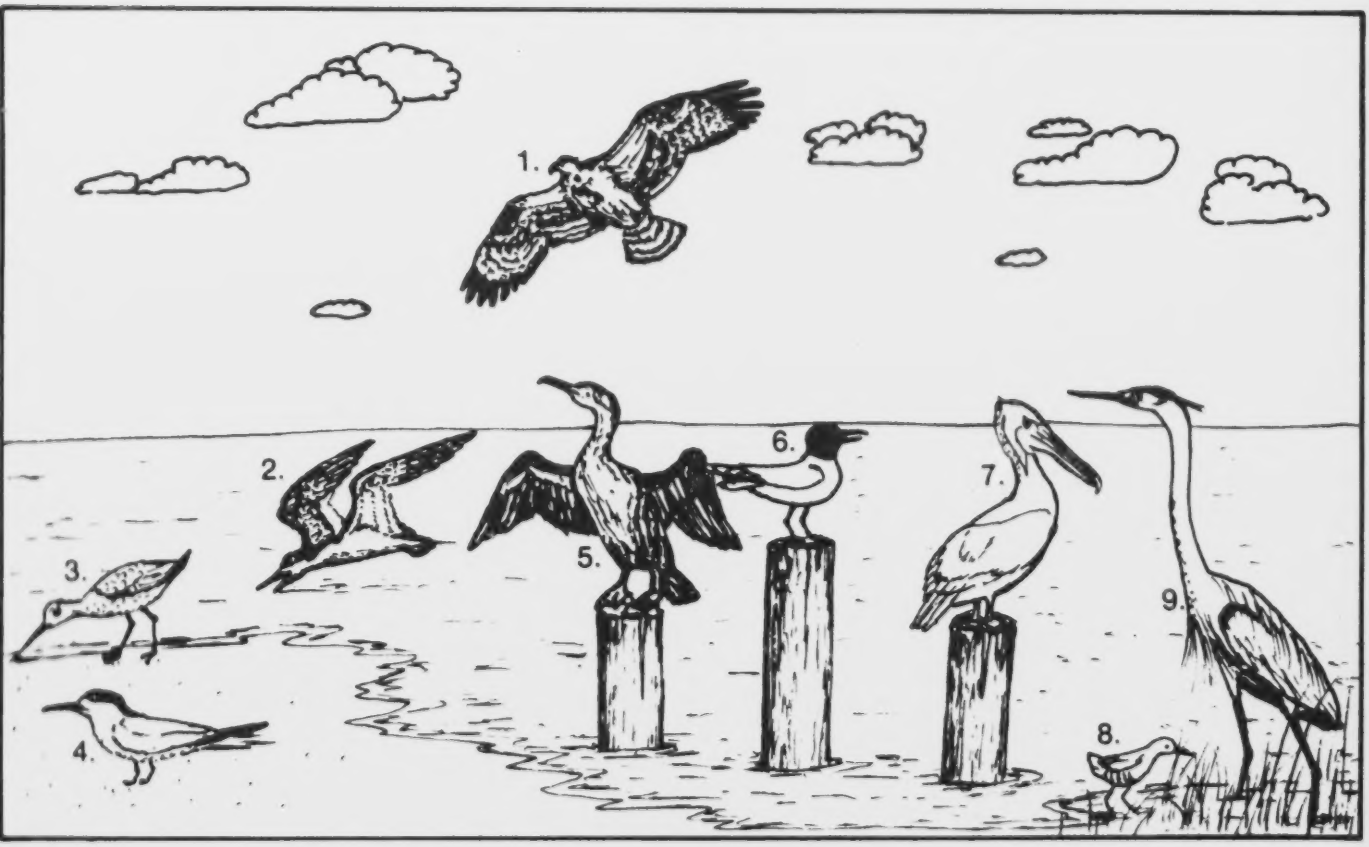
Pictured below are a jellyfish, squid, speckled trout, red drum, shrimp, anemone and periwinkle snail. Color these animals.



COMMON BIRDS OF THE MISSISSIPPI COAST

Mississippians can see more than 350 different kinds of BIRDS during the year. Most of these can be seen right along the coast. Some birds live on the coast year round. Other birds live here only in the winter or the summer. Many birds just stop here a few days in the spring and fall when they are migrating north or south.

MATCHING — In the picture below are some of the COMMON BIRDS that may be seen during the year along the coast. Below the picture are the names of all the birds in the picture. See how many birds you know by matching a picture with each name — write the number of the bird pictured on the line next to the correct bird name. If you need help look at the description on the next page. We have done one for you.



_____ a. Black Skimmer	_____ d. Brown Pelican	_____ g. Clapper Rail
_____ b. Cormorant	_____ e. Great Blue Heron	_____ h. Laughing Gull
4 c. Little (Least) Tern	_____ f. Osprey	_____ I. Willet

HOW'S YOUR BIRD BRAIN?

Listed below are descriptions of the birds listed on page 24.

The LAUGHING GULL has a black head and gets its name from its noisy voice (HA-HA).

The BLACK SKIMMER is named for the way it skims the water with its bill when it feeds.

The BROWN PELICAN has a big pouch under its long bill and often perches on pilings.

The GREAT BLUE HERON is a very tall dark-colored bird with a long, sharp bill to spear fish.

The CLAPPER RAIL hides in marshes and is often heard before it is seen.

The OSPREY is a large, fish-eating hawk that nests on the barrier islands.

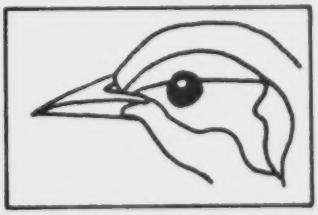
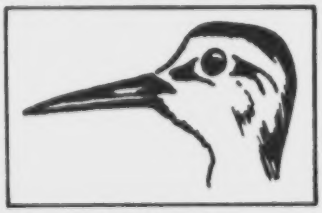
The WILLET uses its long bill to probe in sand or mud for food.

The CORMORANT eats fish and can often be seen sitting on a piling holding its wings out to dry.

The LITTLE (LEAST) TERN nests along Mississippi coast beaches.

READ A BIRD — We can "read" a bird the same way that we can "read" a fish — by using signals. Below we have some bird signals — bills and feet — that tell us something about how some birds eat and move. Look closely so you can "read" the next bird you see.

BILLS — tell something about how birds eat.

short, pointed bill catches insects	long, narrow bill probes in sand and mud	heavy, sharp, hooked bill tears meat	flat, wide bill strains water
			
WARBLER	WILLET	EAGLE	DUCK

FEET — tell something about how birds move or grab things.

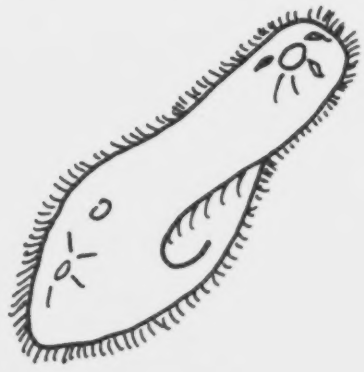
toes in front and back designed for climbing	long legs and large feet for wading	strong, curved talons for grasping	webbed feet for swimming
WOODPECKER	HERON	EAGLE	DUCK

ANIMAL TYPES
INVERTEBRATES

If an animal has no backbone, then it is not a vertebrate. Most animals without backbones are INVERTEBRATES. There are more than 25 groups of INVERTEBRATES, but most belong to one of the six major groups described on the next three pages. (Color the pictures.)

1. PROTOZOA (pro-toe-ZO-a)

   These INVERTEBRATES are tiny and are seen only with a microscope. They live in water everywhere. Many PROTOZOA can swim, but some can only crawl around.



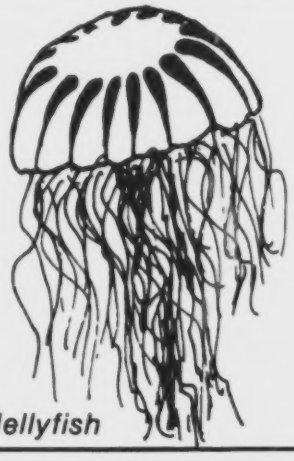
Paramecium

Amoeba

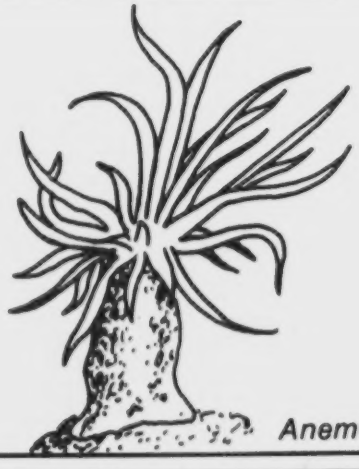
Euglena

2. COELENTERATES (so-LIN-ter-ates)

   These INVERTEBRATES, also called Cnideria (ni-DAR-ia), can be tiny or large; and they all live in water. They have soft bodies and stinging tentacles which they use to protect themselves and to capture food. Most COELENTERATES live in the ocean, but some small jellyfish live in lakes and ponds.



Jellyfish

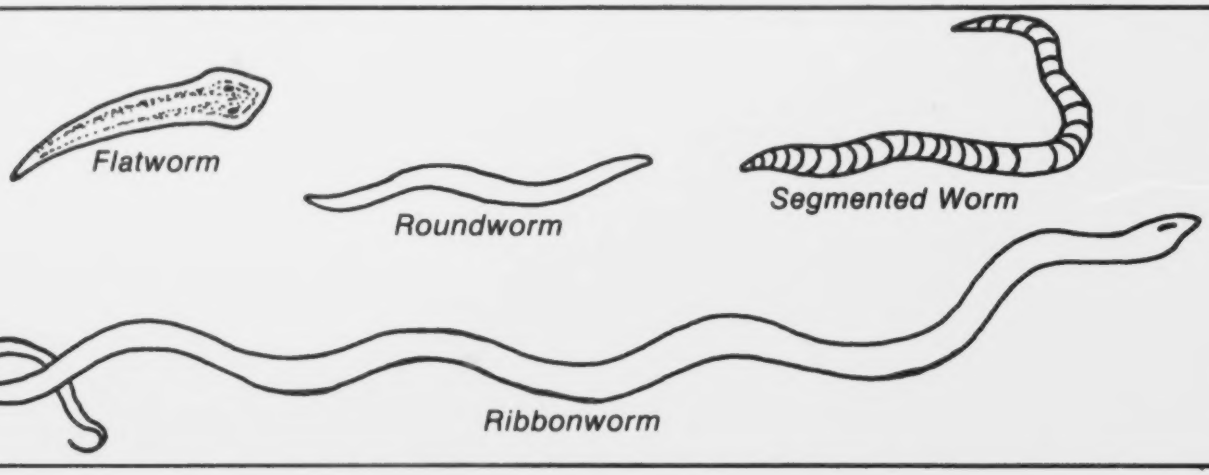


Anemone

ANIMAL TYPES
INVERTEBRATES

3. WORMS (bet-you-can-say-WORMS)

There are many different kinds of WORMS, but all are soft and look like a worm. The FLATWORMS are flat. ROUNDWORMS are smooth and round. Some look like ribbons and are called RIBBONWORMS. Others are made up of different segments. These are called SEGMENTED WORMS. Some worms live on the bottom of oceans or lakes but many live on land.



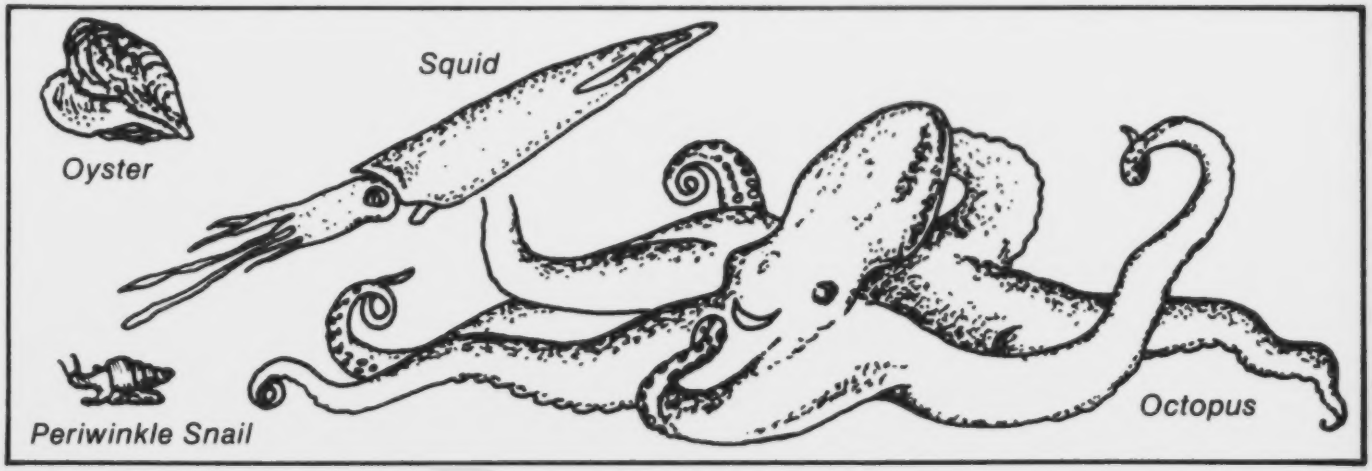
4. ECHINODERMS (e-KINE-o-derms)

These INVERTEBRATES have a hard, spiny body but are soft inside. The sand dollar is an ECHINODERM which we often find washed up dead on the beach. Only its hard body shell is left. All ECHINODERMS live in the ocean.

ANIMAL TYPES
INVERTEBRATES

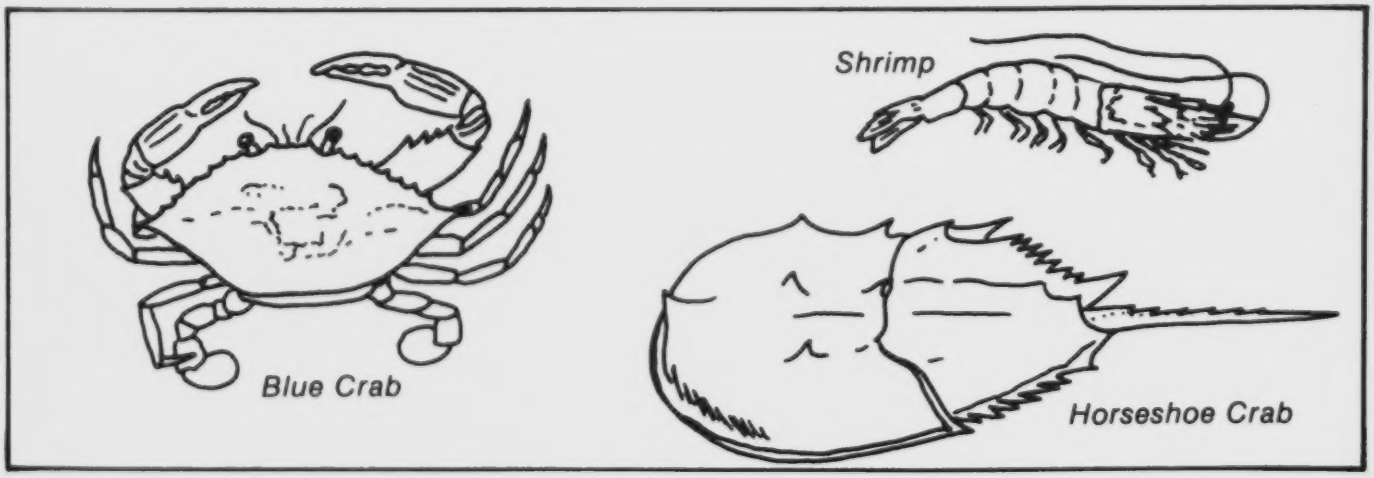
5. MOLLUSKS (MOLL-usks)

Many of these INVERTEBRATES are familiar, like the snail. The octopus and squid are MOLLUSKS also. Snails have a single shell to protect them. Oysters and clams have two shells to protect them. The octopus and the squid have no outside shell.



6. ARTHROPODS (R-throw-pods)

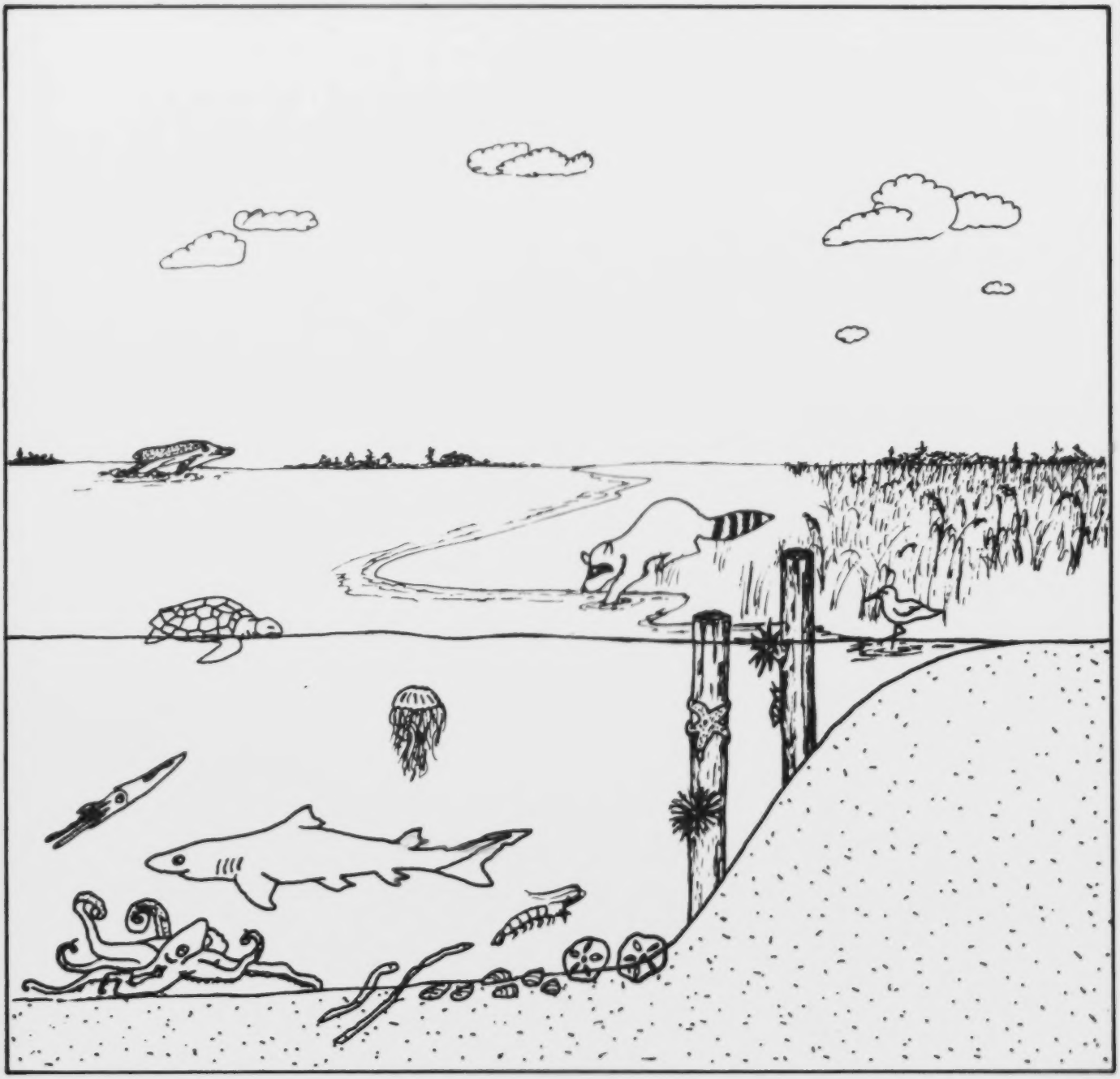
These INVERTEBRATES are very familiar because they include insects, crabs, shrimp, crayfish, spiders and more! All ARTHROPODS have a hard outer body and jointed legs. Their hard body protects them and is also their skeleton.



INVERTEBRATE PICTURE GUESS

Most animals that are not vertebrates are INVERTEBRATES. They are also a COASTAL RESOURCE.

PICTURE GUESS GAME — Circle all the INVERTEBRATES pictured below. There are 18 INVERTEBRATES in the picture.



WHAT HAVE YOU LEARNED?

This activity book has been about COASTAL RESOURCES. A resource is something that is available for use again and again whenever it is needed. As long as we conserve our coastal resources, they will continue to provide us with food, recreation, jobs, and other benefits. These resources, the fish, shrimp, wetlands and islands, are the things which make living on Mississippi's Gulf Coast a unique, enjoyable experience. The more you learn about coastal resources; the better you will understand how valuable they are to all of us.

On the next page is a word search game. The words you will seek are words we have used throughout the activity book. This game should help you remember what you have learned—and the fun you had doing it.

WORD SEARCH

WORD SEARCH — There are 18 words listed in the word bank. Find these words in the word search puzzle below. One word has been found already.

t	f	a	i	s	l	a	n	d	s	b	c
r	i	u	n	u	t	r	i	e	n	t	s
o	s	d	v	o	c	w	r	f	j	m	p
u	h	l	e	n	r	p	a	q	t	o	l
t	r	i	r	s	a	v	m	t	w	c	a
v	e	r	t	e	b	r	a	t	e	k	n
s	x	u	e	c	s	e	r	l	t	r	k
m	i	a	b	m	j	s	s	s	l	u	t
a	b	i	r	d	s	o	h	q	a	x	o
p	c	o	a	s	t	u	z	u	n	r	n
a	d	i	t	g	h	r	k	i	d	o	d
h	j	q	e	m	s	c	o	d	s	o	z
s	h	r	i	m	p	e	t	d	o	d	b

WORD BANK

resource	birds	trout
islands	fish	shrimp
coast	crab	squid
vertebrate	wetlands	invertebrate
tides	water	marsh
nutrients	plankton	map

ANSWER SHEET

PAGE 3

thing; place; something; obtained; again

PAGE 4

1. a.
2. f.
3. d.
4. e.
5. c.
6. b.

PAGE 6

a. 5.	f. 12.	k. 4.
b. 14.	g. 8.	l. 6.
c. 10.	h. 7.	m. 11.
d. 2.	i. 9.	n. 15.
e. 3.	j. 1.	o. 13.

PAGE 7

Across —
1. barrier islands

Down —
2. sand
3. protect
4. Horn
5. Ship
6. north
7. south

PAGE 9

Across —
1. plankton
2. animals

Down —
1. plants
3. water
4. lakes
5. oxygen

PAGE 11

1. b.
2. c.
3. d.
4. a.

PAGE 14

1. sunlight
2. plankton
3. shrimp
4. fish
5. big shark

PAGE 18

1. fishes
2. amphibians
3. reptiles
4. birds
5. mammals

PAGE 19

1. e.	6. d.
2. c.	7. f.
3. a.	8. b.
4. j.	9. i.
5. g.	10. h.

PAGE 20

1. d.	7. j.
2. e.	8. b.
3. g.	9. f.
4. c.	10. h.
5. i.	11. k.
6. a.	

PAGE 21

1. catfish	e.
2. sawfish	d.
3. flying fish	a.
4. seahorse	b.
5. hammerhead	c.

PAGE 24

a. 2.	d. 7.	g. 8.
b. 5.	e. 9.	h. 6.
c. 4.	f. 1.	i. 3.

PAGE 29

squid	sand dollars
octopus	oysters
jellyfish	starfish
worms	anemones
shrimp	snail

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